

Exhibit C

IN THE UNITED STATES BANKRUPTCY COURT
FOR THE DISTRICT OF DELAWARE

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In re:	Chapter 11
FTX TRADING LTD., et al.,	Case No. 22-11068
Debtors.	(JTD)

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DEPOSITION OF SABRINA HOWELL

Monday, February 26, 2024

Traci M. Mertens, RDR, CRR, CSR

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1 large debtor holdings. They don't suggest anything
2 wrong with the models themselves.

3 Q. That's not my question. My question is:
4 Some of these models are returning a discount of
5 more than 100 percent, correct?

6 A. Correct.

7 Q. And then you modify that down to 100
8 percent as your opinion, correct? A hundred percent
9 discount?

10 A. Correct.

11 Q. So when you say that some of these other
12 models that you considered produced discounts that
13 were higher than the KO 2016 model, you're saying
14 they were also producing discounts of above a
15 hundred percent, is that correct?

16 A. Not necessarily. In fact, my agenda in
17 choosing and evaluating the KO model against
18 alternatives was based on applying a consistent
19 methodology to 1,321 digital assets in the debtor's
20 holdings. And for many of those, the discount
21 calculated was well under a hundred percent across
22 all the methods that I considered.

23 It is only for the -- you know, for the
24 at-issue tokens we have this extremely large
25 concentration of the debtor's holdings relative to

1 Q. Do they use the term discount at all in
2 the paper?

3 A. No, but I don't think that's relevant to
4 my use of the model in this matter.

5 Q. So are transaction costs and the discount
6 identical?

7 A. Yes. They are different words for the
8 same percent of price.

9 Q. So the entire discount you applied in this
10 case is based on transaction cost?

11 MR. GLUECKSTEIN: Object to the form.

12 Q. (By Mr. Roselius) You can answer.

13 A. Entire discount -- you're just referring
14 to the asset liquidation discount right now --

15 Q. Correct.

16 A. -- and discount for lack of marketability?
17 Yes. The Kyle and Obizhaeva model has two
18 components, a bid ask spread cost and a price impact
19 cost, and those two together are the transaction
20 costs which are a percent of the price. It's a
21 percent of costs, and I refer to that as a discount.

22 However, it would be equally correct to
23 have referred to it throughout as a percent of
24 petition date press.

25 Q. If you have an asset that has a price of

1 of extreme illiquidity where holdings are many
2 thousands of times daily trading volume, and thus,
3 in practice, the price would almost -- would most
4 likely quickly go to zero. That is what is being
5 captured by these very high liquidation discounts.

6 Q. Does the price go to zero on the first
7 token?

8 A. Not necessarily.

9 Q. What do you mean by that?

10 A. It is true that for the tokens at issue,
11 there's a positive market price, and presumably one
12 could sell one token at a positive price. From the
13 perspective of the value of the customer claims at
14 issue here for the debtor's holdings, the share of
15 tokens that could be sold at a positive price is so
16 small as to be negligible and could potentially
17 round to zero with a reasonable number of digits
18 after the decimal point. Therefore, I assign a
19 hundred percent discount.

20 Q. But it has a positive price, correct?

21 A. What is it?

22 Q. The token. The tokens here.

23 A. The tokens have a positive price.

24 Q. At what point how many tokens have to be
25 sold for the price to go to zero? For MAPS; let's

1 before it goes to zero?

2 A. Again, it would depend on market activity,
3 beliefs, and expectations.

4 Q. Could you sell \$20 million before it goes
5 to zero of MAPS?

6 A. I would apply the same rule. And just to
7 illustrate why I believe market expectations are
8 important is that it would depend on, for example,
9 if the debtor announced that it's only selling 10
10 tokens and will destroy the remaining tokens, which
11 would be contrary, as I understand, to the
12 requirement as part of this bankruptcy proceedings
13 that all of the individual assets be liquidated,
14 regardless of the basis of the customer claims.

15 So in that case where, again, the debtor
16 has said we're going to sell 10 tokens and destroy
17 the remainder, one could imagine selling those 10
18 tokens at a positive price. That's common sense.

19 The analysis that I was asked to conduct
20 was to assess what would happen if the debtor
21 started to liquidate all of his holdings, and once
22 the market knows that the debtor is starting that
23 liquidation process, there would be an interplay
24 between that information and actual sales that would
25 determine when the price would go exactly to zero.

1 Q. And that is some point after the tokens
2 start to be sold, is that correct?

3 A. I would expect so.

4 Q. So my question to you is with respect to
5 MAPS and OXY, at what point does the price go to
6 zero?

7 A. I cannot speculate, but my analysis
8 suggests that the overall proceeds to the estate
9 would be negligible and essentially rounding to zero
10 from the perspective of the large amount of holdings
11 of the debtor, around 400 million for OXY, a billion
12 for MAPS, and 3.7 billion for Serum.

13 Q. But it's not equal to zero, correct?

14 A. It's not exactly equal to zero.

15 Q. So again, my question is: Is it more or
16 less than \$100 million?

17 A. I cannot speculate on specific amounts.

18 Q. More or less than \$25 million for MAPS and
19 OXY each?

20 A. I have not done the analysis to speculate
21 on such amounts.

22 Q. What is a blockage model?

23 A. Can you elaborate?

24 Q. Well, that's what Mr. Konstantinidis calls
25 his model, right?

1 available to customers. And it would have been
2 reasonable, as I say in my report, to expect that
3 perpetual futures volume to dry up, given Serum's
4 dependence on FTX.

5 So I don't think that would have been --
6 that, you know, is a plausible trading strategy, but
7 more importantly, the hypothetical you described
8 causes claims to amount to far more than a hundred
9 percent of what the debtor would ultimately get when
10 they liquidate their holdings in cash.

11 So, you know, the fraud and mismanagement
12 at FTX creates this problem of a difference in the
13 composition of assets where customer claims are
14 taken together on more liquid assets with deeper
15 markets like Bitcoin or Tether while the debtor's
16 holdings are more concentrated in less liquid
17 markets like MAPS, OXY, and Serum, and so there is a
18 shortfall in liquidating the debtor's assets of
19 those holdings relative to customer claims.

20 And for that reason, it's -- it would have
21 been, in my view, essentially infeasible given the
22 assignment to liquidate all of the holdings of
23 digital assets to take each customer claim and try
24 to value that in isolation without considering these
25 negative externalities or negative spillovers from

1 Q. Is it your understanding that Sam
2 Bankman-Fried and others from FTX were advisors to
3 the Solana blockchain?

4 A. I have not heard of Mr. Sam Bankman-Fried
5 having as formal a role in the Solana ecosystem as
6 he did in OXY and MAPS, but I know he was a
7 proponent of the Solana blockchain.

8 Q. So is your answer that you don't know if
9 he was an advisor to the Solana blockchain?

10 A. That's correct. I don't know. I'm not
11 sure.

12 Q. Are you aware whether Solana has increased
13 in value since the petition date?

14 A. I believe it has.

15 Q. Do you know by how much?

16 A. I do not.

17 Q. If one of the at-issue tokens, OXY or MAPS
18 tokens had a fundamental value, would your
19 calculation of the asset liquidation discount
20 extinguish that value?

21 A. My asset liquidation discount estimates do
22 not depend on fundamental value.

23 Q. So does that mean they would not
24 extinguish it, that your discount is independent
25 from the fundamental value that MAPS or OXY tokens

1 may have?

2 A. My discount is an estimate of the likely
3 price at which the debtor could sell its holdings.
4 It is not a measure of fundamental value, and it
5 doesn't -- therefore, the discount estimate itself
6 cannot destroy fundamental value in any way.

7 Q. I believe you testified earlier that you
8 did not use CoinMarketCap trading volume for
9 purposes of determining your asset liquidation
10 discounts for MAPS and OXY tokens, correct?

11 A. Yes.

12 Q. And was the reason that you didn't use the
13 CoinMarketCap data the Bitwise, B-I-T-W-I-S-E,
14 article regarding the amount of fake volume on
15 CoinMarketCap?

16 A. I chose not to include additional
17 exchanges on CoinMarketCap that do not appear in
18 Coin Metrics because of evidence from a wide array
19 of sources that the overwhelming majority of volume
20 on those additional exchanges is not organic and
21 instead reflects wash trading.

22 Q. Do you agree that CoinMarketCap is a
23 reliable valuation tool for determining the US
24 dollar value of cryptocurrency tokens?

25 A. I believe that the most reliable price

1 A. No.

2 Q. Now, are you aware of what efforts
3 CoinMarketCap has taken to eliminate wash trading or
4 other fake volume from its data after the 2019
5 Bitwise article?

6 A. I am not aware of such actions. I do know
7 that they provide trust scores for the exchanges
8 that they cover, and I specifically considered the
9 trust scores of the additional exchanges on
10 CoinMarketCap not covered by Coin Metrics and found
11 that they had low trust scores, according to the
12 CoinMarketCap classification scheme.

13 And furthermore, when I estimate the asset
14 liquidation discounts using these alternative data
15 aggregation sources that Mr. Konstantinidis
16 suggested, I find discounts that remain at a hundred
17 percent for both MAPS and OXY across all three
18 sources that he suggested, including CoinMarketCap.
19 So it really doesn't affect the estimate for the
20 at-issue tokens whether we were to use CoinMarketCap
21 or not.

22 Q. Well, it affects -- it may have an effect
23 if you then determine the growth rate on top of that
24 amount, which you do not, right?

25 A. That is true.

1 Q. So are you aware that CoinMarketCap
2 threatened to move -- remove exchanges from its
3 aggregation if they didn't provide mandatory
4 training data?

5 A. I am not aware of those policies.

6 Q. Are you aware that -- so you're not aware
7 of whether that additional mandatory data reporting
8 improved the accuracy of CoinMarketCap's reported
9 trading volume?

10 A. I am not. I believe their trust scores as
11 of recent weeks when I was looking at them are up to
12 date, given their current policies. These
13 incremental exchanges had trust scores that were
14 either in their sort of very poor quality range or,
15 you know, medium quality range.

16 Q. We'll get there, but I'm not asking you
17 about that yet.

18 Are you aware that CoinMarketCap announced
19 a data accountability and transparency alliance
20 after the 2019 Bitwise article?

21 A. No.

22 Q. So you're not aware of whether any such
23 alliance actually improved the accuracy of
24 CoinMarketCap's reported trading volume, right?

25 A. I am not.

1 Q. Were you aware that after the 2019 Bitwise
2 article that CoinMarketCap started to exclude from
3 its trade volume any data from an exchange that does
4 not impose a trading fee?

5 A. I am not.

6 Q. So you're not aware of whether excluding
7 trading data from an exchange that doesn't impose a
8 fee has improved the reliability of CoinMarketCap's
9 trading volume data, right?

10 A. I am not.

11 Q. Are you aware that after the 2019 Bitwise
12 article that CoinMarketCap started reporting the
13 liquidity of all market pairs using a liquidity
14 score?

15 A. That seems likely to be related to the
16 trust scores that I looked at on an exchange level,
17 but I didn't look at -- at pairs, specific pairs
18 scores, if they exist.

19 Q. So you're not familiar with the liquidity
20 score for market pairs?

21 A. I'm not.

22 Q. So you're not aware of whether using that
23 liquidity score for market pairs has improved the
24 reliability of CoinMarketCap's trading volume data,
25 right?

1 A. I am not.

2 Q. Are you aware that after that 2019 Bitwise
3 article that CoinMarketCap started using web traffic
4 as a measure to identify wash or fake trades?

5 A. I am not.

6 Q. So then --

7 A. I would just point out that the Cong, et
8 al. 2023 published in Management Science finds that
9 on these unregulated -- what they describe as tier 2
10 exchanges which are also the incremental exchanges
11 on CoinMarketCap and not Coin Metrics wash trading
12 is 70 to 80 percent of total volume, you know.

13 So it was on the basis of their research,
14 which is peer reviewed and published in a high
15 quality journal, that contributed my decision to use
16 the Coin Metrics universe where Kevin Lu and his
17 team at Coin Metrics believe based on a rigorous
18 process that at least at most, which I interpret to
19 be more than 50 percent of volume, is legitimate.

20 Q. So you relied on Mr. Lu and not your own
21 independent analysis, is that right?

22 A. I reviewed Mr. Lu's declaration and
23 believe that Coin Metrics has a strong reputation in
24 the industry, and so I thought the best source of
25 data would be the Coin Metrics API.

1 Q. Have you ever looked at case law to see if
2 courts used CoinMarketCap data?

3 A. I did not.

4 Q. So since you're not aware of the liquidity
5 score, can I assume that you're also not aware of
6 whether using that liquidity score has improved the
7 accuracy of CoinMarketCap's trading volume data?

8 A. I have not seen those data.

9 Q. So you didn't use CoinMarketCap as a
10 source of trading value for MAPS and OXY tokens?

11 A. I did in my rebuttal report but not for my
12 main asset liquidation discounts.

13 Q. What exchanges did you use to determine
14 the trade volume for OXY tokens as of the petition
15 date?

16 A. I used the universe of Coin Metrics
17 exchanges that cover the tokens after removing, as I
18 mentioned earlier, Lbank, ZB, and Local Bitcoins.
19 And as I recall, there are -- there's about six
20 exchanges that cover OXY, but I would have to return
21 to my underlying data material to be sure.

22 Q. Would it refresh your recollection if I
23 said you used Kraken and Bitfinex?

24 A. I believe those are two of them. I
25 believe there are more than two.

1 Coin Metrics?

2 A. I do not.

3 Q. Was there any quality rating below which
4 you didn't go?

5 A. My approach was to try to be as inclusive
6 as possible and not to dig too deep into what
7 percent of volume on the Coin Metrics exchanges
8 might be wash trading, and so I used the entire
9 universe with the exception of three exchanges where
10 Mr. Lu told me they are not trustworthy.

11 So the process did not involve an
12 exchange-by-exchange evaluation which is one reason
13 that I don't recall sitting here exactly which
14 exchanges were used for every asset that I
15 considered because I took the universe of Coin
16 Metrics' API after excluding those three exchanges.

17 Q. And the three you excluded were Lbank, ZB,
18 and what was the third one?

19 A. Local Bits.

20 Q. Local Bits. And is ZB just the letter Z
21 as in zebra and the letter B as in beta?

22 A. Correct.

23 Q. So you weren't looking at Coin Metrics or
24 CoinMarketCap and saying okay, I'm stopping here at
25 this rating of C. Anything below C, I'm excluding.

1 You didn't do that in this analysis, did you?

2 A. I did not.

3 Q. You excluded only what Mr. Lu said should
4 be excluded, right?

5 A. That's correct. As we discussed earlier,
6 I confirmed unreasonable trading activity on those
7 three exchanges that I excluded.

8 Q. What sources did you use to determine the
9 trade volume of Serum tokens?

10 A. I used all of the exchanges in the Coin
11 Metrics API, again, except for the three we
12 discussed, and I believe the list for Serum which
13 was more widely traded was about 15 exchanges.

14 Q. Did you use Poloniex and Bitbox?

15 A. I don't recall.

16 Q. Do you know if Coin Metrics has a spot
17 market data quality grade for Poloniex or Bitbox?

18 A. Again, I did not use any intensive margin
19 measures of trustworthiness from Coin Metrics
20 besides the instruction from Mr. Lu to exclude the
21 three exchanges that were especially untrustworthy.

22 Q. So you didn't compare the scores for Lbank
23 on Coin Metrics or CoinMarketCap?

24 A. I did not.

25 Q. How long would it have taken you to do

1 be aware of in an efficient market, what types of
2 things.

3 A. I think the efficient market hypothesis
4 assumes that traders have perfect and up-to-date and
5 complete information about the assets that they're
6 trading, and this is never perfectly true in
7 reality. If the markets were these tokens were
8 efficient, I would assume that traders were
9 incorporating their beliefs, which do not need to be
10 rational, as well as information they may obtain
11 about the asset.

12 Q. So in an efficient market, investors would
13 be aware of public information?

14 A. Investors would be aware of public
15 information, yes.

16 Q. Like the fact that the debtor had, you
17 know, the vast majority of the MAPS and OXY tokens,
18 right?

19 A. I would think so, yes.

20 Q. And do you think investors were -- let me
21 rephrase that.

22 As part of your analysis, did you consider
23 whether investors were aware of the locked token
24 schedule for MAPS and OXY tokens?

25 A. The locked tokens were provided to me at a

1 customer account level with according vesting
2 schedules. I do not know to what degree those
3 schedules were public information.

4 Q. We talked about Lbank earlier and the fact
5 that you excluded the Lbank trading volume from MAPS
6 or OXY tokens, whatever was reported on Lbank,
7 right?

8 A. That's correct.

9 Q. And with respect to MAPS, if you included
10 Lbank, the average daily trading volume would have
11 increased from a little over 500,000 to 1.7 to 1.8
12 million, correct?

13 A. I have not done that analysis because I
14 included those exchanges for all of the 1321 digital
15 assets that I considered before evaluating the
16 discount.

17 Q. Do you believe that the terms price
18 impact, transaction cost, and discount all mean the
19 same thing in finance?

20 A. It depends on context, at the risk of
21 sounding like a university professor.

22 Q. Give me the context in which those terms
23 all mean the same thing, if any.

24 A. In the context of the Kyle and Obizhaeva
25 model, what they termed the transaction cost as a

1 Q. Well, I appreciate that, but if you could
2 still answer it. The question is whether there's
3 any literature that says that --

4 A. I don't know of any literature.

5 Q. Sorry. Let me finish the question.

6 A. Go ahead.

7 Q. Yeah. Let me finish the question so we
8 have a clean transcript.

9 MR. GWYNNE: If you'd just read it back
10 one more time, please.

11 A. I know -- I understand the question.

12 MR. GLUECKSTEIN: Let her read it back.

13 THE WITNESS: Okay.

14 (The preceding question was read back as
15 requested.)

16 A. I don't know of any literature discussing
17 the precise meanings of the words discount and
18 transaction cost --

19 Q. (By Mr. Gwynne) Okay.

20 A. -- but I'm happy to call the asset
21 liquidation discount an asset liquidation
22 transaction cost. To me, it is immaterial to the
23 real impact.

24 Q. Are you aware of the KO model ever being
25 used other than by you to determine a discount?

1 existed.

2 Q. But they did exist?

3 A. They did.

4 Q. And you chose to use a model with
5 coefficients that weren't based on the data in the
6 relevant market, right?

7 MR. GLUECKSTEIN: Object to the form.

8 A. So again, the coefficients are not
9 designed to be solely applicable to those stock
10 markets, and in fact, Kyle and Obizhaeva themselves
11 applied their calibrated model with those
12 coefficients to other types of markets such as
13 corporate bond markets and treasury markets.

14 Q. (By Mr. Gwynne) Did you do anything, any
15 type of research or study to determine what the
16 coefficients would be if you used data from the
17 cryptocurrency market?

18 A. I did not.

19 Q. Can application of the KO model be used to
20 determine the discount that renders a token
21 valueless, notwithstanding that the token can be
22 sold for positive dollar amounts?

23 A. The purpose of the KO model is not to
24 value an asset, but rather, to assess the
25 transaction cost from a given decision to take a

1 position. So I -- I don't -- I don't think we can
2 use the term value to describe the results as you
3 did.

4 Q. So the KO model does not determine the
5 value of a cryptocurrency token. We can agree on
6 that?

7 A. Correct.

8 Q. The Chaffe -- is that how you pronounce
9 it? C-H-A-F-F-E?

10 A. I've seen it with both two Es and one
11 E. I'm not exactly sure. I think Chaffe is the
12 way to pronounce it, though.

13 Q. Do you agree that the Chaffe discount
14 model always overstates the discount for high
15 volatiles?

16 MR. GLUECKSTEIN: Object to the form.

17 A. I don't have a reason to believe that it
18 always overstates a discount. I wouldn't know what
19 the relevant benchmark was.

20 Q. (By Mr. Gwynne) Do you have a reason to
21 believe that the Chaffe discount model overstates
22 the discount for high volatiles?

23 MR. GLUECKSTEIN: Object to the form.

24 A. I think in longer horizons, the Chaffe
25 model must understate the discount because it

1 MR. GWYNNE: Let me withdraw the question.

2 Q. (By Mr. Gwynne) When you say all the
3 debtor's tokens were unlocked, do you mean that they
4 technically had been unlocked according to their
5 scheduled time to be unlocked, or do you mean
6 something else?

7 A. My knowledge is limited to the information
8 I have from the debtor that it controls a set of
9 digital assets and that all of those assets are
10 available to be liquidated.

11 What may be driving this confusion is that
12 there were tokens that were locked from the
13 customer's perspective, for example, with tickers
14 like MAPS locked, but it was FTX that controlled
15 those token lockup schedules and could unlock them
16 at will, very similar to how employees at
17 conventional companies are compensated with, for
18 example, restricted stock units or options that have
19 vesting schedules, and the company controls those
20 shares. But from the employees' perspective, they
21 are quote, unquote locked.

22 Q. How do you know the debtor could unlock
23 tokens at will?

24 A. My understanding is that all of the
25 holdings that I am considering in my analysis are